Claims

1. Method for the determination of an antenna weighting factor ($\underline{w}$) for adjusting an antenna weighting in base stations (BS1, BS2, BS3) of a cellular radio network (N), wherein a radio link between a mobile terminal (1) and the network (N) can be established simultaneously via a plurality of base stations (BS1, BS2, BS3) which respectively transmit in a parallel manner via a plurality of transmission paths (DL1a, DL1b, DL2a, DL2b, DL3a, DL3b) from various antennas (A1a, A1b, A2a, A2b, A3a, A3b) to said terminal (1),
such that said terminal (1) respectively determines for the associated base stations (BS1, BS2, BS3) channel coefficients (H_{B1}, H_{B2}, H_{B3}) for the transmission paths (DL1a, DL1b, DL2a, DL2b, DL3a, DL3b) between the antennas (A1a, A1b, A2a, A2b, A3a, A3b) of the base station (BS1, BS2, BS3) concerned and said terminal (1),
and such that said terminal (1) determines an antenna weighting factor ($\underline{w}$) using the channel coefficients (H_{B1}, H_{B2}, H_{B3}) and transmits said factor to the base stations (BS1, BS2, BS3),
characterized in that
in respect of each of the individual base stations (BS1, BS2, BS3) a transmission quality value (Q_1, Q_2, Q_3) of a transmission channel (UL_1, UL_2, UL_3) between the base station (BS1, BS2, BS3) concerned and the terminal (1) is determined,
and in that when the antenna weighting factor ($\underline{w}$) is being determined the channel coefficients (H_{B1}, H_{B2}, H_{B3}) of the individual base stations (BS1, BS2, BS3) are prioritized and taken into account, in each case as a function of the determined transmission quality value (Q_1, Q_2, Q_3) between the base station (BS1, BS2, BS3) concerned and the terminal (1).

2. Method according to Claim 1,
characterized in that
prioritization is carried out in such a way that when determining the antenna weighting factor ($\underline{w}$), consideration is

given only to the channel coefficients (H_{B1}, H_{B2}, H_{B3}) of the base stations (BS1, BS2, BS3) in which the transmission quality value (Q_1, Q_2, Q_3) is above or below a certain limit value.

3. Method according to Claim 1,
characterized in that
when the antenna weighting factor ($\underline{w}$) is being determined a weighting is applied to the channel coefficients (H_{B1}, H_{B2}, H_{B3}) of the base stations (BS1, BS2, BS3), said weighting being in direct or inverse proportion to the transmission quality value (Q_1, Q_2, Q_3) of the transmission channel (UL_1, UL_2, UL_3) between the base station (BS1, BS2, BS3) concerned and the terminal (1).

4. Method according to one of the Claims 1 to 3,
characterized in that
the transmission quality value (Q_1, Q_2, Q_3) is determined by means of a bit error rate and/or a frame error rate and/or a transmission power or received power.

5. Method according to one of the Claims 1 to 4,
characterized in that
the transmission quality value (Q_1, Q_2, Q_3) is a measure for the transmission quality of an uplink channel (UL_1, UL_2, UL_3) from the terminal (1) to the base station (BS1, BS2, BS3) concerned.

6. Method according to Claim 5,
characterized in that
in order to determine the transmission quality value (Q_1, Q_2, Q_3) of the uplink channel (UL_1, UL_2, UL_3), the terminal determines a feedback error rate by checking the antenna weighting factor set by the base station (BS1, BS2, BS3) concerned.

7. Method according to one of the Claims 1 to 6,
characterized in that

the terminal (1) determines a transmission quality value (Q_1, Q_2, Q_3) for the uplink channel (UL_1, UL_2, UL_3) by means of transmission power request signals (LA1, LA2, LA3) that the base station (BS1, BS2, BS3) concerned transmits to the terminal (1).

8. Method for operating a cellular radio network (N), wherein a radio link between a mobile terminal (1) and the network (N) can be established simultaneously via a plurality of base stations (BS1, BS2, BS3) which respectively transmit in a parallel manner via a plurality of transmission paths (DL1a, DL1b, DL2a, DL2b, DL3a, DL3b) from various antennas (A1a, A1b, A2a, A2b, A3a, A3b) to said terminal (1),
such that said terminal (1) respectively determines for the associated base stations (BS1, BS2, BS3) channel coefficients (H_{B1}, H_{B2}, H_{B3}) for the transmission paths (DL1a, DL1b, DL2a, DL2b, DL3a, DL3b) between the antennas (A1a, A1b, A2a, A2b, A3a, A3b) of the base station (BS1, BS2, BS3) concerned and said terminal (1), and said terminal (1) determines an antenna weighting factor ($\underline{w}$) with the aid of the channel coefficients (H_{B1}, H_{B2}, H_{B3}) and transmits said factor to the base stations (BS1, BS2, BS3),
and such that the base stations (BS1, BS2, BS3) set an antenna weight with the aid of the antenna weighting factor ($\underline{w}$),
characterized in that
determination of the antenna weighting factor ($\underline{w}$) takes place in the terminal (1) in accordance with a method according to one of the Claims 1 to 7.

9. Mobile terminal (1) for use in a method according to one of the Claims 1 to 8,
having a channel coefficient determination unit (2) for determining, in the case of each of the associated base stations (BS1, BS2, BS3), channel coefficients (H_{B1}, H_{B2}, H_{B3}) for the transmission paths (DL1a, DL1b, DL2a, DL2b, DL3a, DL3b) from the antennas (A1a, A1b, A2a, A2b, A3a, A3b) of the base station (BS1, BS2, BS3) concerned to the terminal (1),

and having an antenna weighting factor determination unit (3) in order to determine an antenna weighting factor ($\underline{w}$) using the channel coefficients (H_{B1}, H_{B2}, H_{B3}) and to transmit said factor to the base stations (BS1, BS2, BS3),
characterized in that
the terminal has a transmission channel control unit (5) for determining in respect of each of the individual base stations (BS1, BS2, BS3) a transmission quality value (Q_1, Q_2, Q_3) of a transmission channel (UL_1, UL_2, UL_3) between the base station (BS1, BS2, BS3) concerned and the terminal (1),
and in that the antenna weighting factor determination unit (3) is designed in such a way that when the antenna weighting factor ($\underline{w}$) is being determined the channel coefficients (H_{B1}, H_{B2}, H_{B3}) of the individual base stations (BS1, BS2, BS3) are prioritized and taken into account, in each case as a function of the determined transmission quality value (Q_1, Q_2, Q_3) between the base station (BS1, BS2, BS3) concerned and the terminal (1).

10. Terminal according to Claim 9,
characterized in that
the terminal (1) has a prioritization unit (4) that uses the transmission quality values (Q_1, Q_2, Q_3) for the individual base stations (BS1, BS2, BS3) to determine weighting factors (α_1, α_2, α_3), and in that the antenna weighting factor determination unit (3) uses said factors when computing the antenna weighting factor ($\underline{w}$).